

April 15, 2002

TO: Environmental Health Managers
District Health Directors
OEHS Staff
VPI/SU Soil Consultants

FROM: Robert B. Stroube, M.D., M.P.H.
Acting State Health Commissioner

SUBJECT: Waiver for the Use of Proprietary, Non-Gravel Systems at Manufacturer's Specifications for Trench Drainfields

GMP #116

Background

The Virginia Department of Health (VDH) has reviewed information concerning installation and use of certain types of gravelless systems according to specifications recommended by the system manufacturer. This includes experience from other jurisdictions and available technical literature. VDH has concluded that, when properly sited, designed, installed, used, and maintained, gravelless systems sized according to specifications other than those contained in the *Sewage Handling and Disposal Regulations* (12 VAC 5-610-10 et seq., the "*Regulations*") may be capable of treating and dispersing septic tank effluent in a manner sufficient to protect public health and water quality.

VDH recognizes that installation of gravelless systems at manufacturer's recommended specifications may provide benefits to consumers, provided the absorption area is adequate to assure the long-term treatment and dispersal of septic tank effluent or other treated effluents. Sizing a drainfield smaller than specified in the *Regulations* may not result in adverse effects to public health or groundwater because this does not change the fundamental processes by which septic effluent trenches function. Such sizing may, however, reduce the operational life of the soil absorption system (i.e. shorten the time to failure). As long as the overall absorption area is maintained "in reserve," replacing the clogged trenches becomes a matter of long-term operation and management and not one of public health or environmental protection.

Scope/Applicability

This policy authorizes an owner to install a gravelless septic-effluent drainfield system at manufacturer's recommended sizing ("Substituted System"), subject to compliance with all of the conditions listed herein. The requirements of this policy do not apply to gravelless systems sized in accordance with the *Regulations* as provided in **GMP # 102**.

Before an owner may authorize a contractor to install a Substitute System he must obtain a permit for a gravel-type system issued by VDH.¹ A Virginia-licensed Professional Engineer (PE) or Authorized Onsite Soil Evaluator (AOSE) may design a gravelless septic drainfield using the manufacturer's specifications within an area that meets the requirements of the *Regulations*. All sites where a manufacturer's recommended sizing is to be employed must meet all the other requirements of the *Regulations* for a drainfield with gravel trenches (includes conventional gravity, enhanced flow, or low pressure).

For systems installed pursuant to this GMP, only a contractor licensed in Virginia and trained and certified by the manufacturer is authorized to install the Substituted System. The total area ("footprint") required for the conventional drainfield, including reserve area if applicable, must be preserved during construction of the Substituted System and after construction by the owner.

Waiver

Any manufacturer meeting the requirements of this policy for a specific Substituted System shall be deemed to have met the requirements for a provisionally approved system. See §§ 442- 444 and 446- 447 of the *Regulations* (provisional system approval and evaluation). A Substituted System authorized pursuant to this policy shall be considered a system with general approval pursuant to § 448 of the *Regulations*.

Conditions

1. General Requirements.

A. Limitations.

- (1) All Substituted Systems must be of a type authorized by **GMP #102** or successor policy.
- (2) Substituted Systems are limited to systems serving detached single-family dwellings or duplex dwellings, not exceeding six (6) bedrooms total.

¹ If plans for the system were drawn by a PE or by an AOSE (non-VDH), the owner must obtain written approval from the PE or AOSE prior to installing a Substitute System.

- (3) Substituted Systems may not be installed pursuant to a Soil Drainage Management Contract (*Regulations*, Article 5, §§ 600-650).

B. Design.

- (1) Modification of Valid Construction Permits. At the election of the owner, and subject to all of the conditions herein, a Substituted System may be installed at a site for which a construction permit has been issued by the Commissioner in accordance with the *Regulations*. The following shall apply:
- a. Except for resizing the drainfield in accordance with manufacturer's specifications and substituting the appropriate proprietary materials or devices, the drainfield shall be installed exactly as permitted. No changes in drainfield trench location, depth, or contour orientation are authorized. The lateral separation of the trenches shall not be less than the center-to-center distances specified in § 950.F of the *Regulations* (based upon trench width of the Substituted System).
 - b. After installation, the owner shall preserve and maintain the total area ("footprint") required for the conventional drainfield, including reserve area if applicable. The owner shall ensure that no structures are built over the absorption area and that the area is not disturbed in any manner that will render it unusable for future installation of drainfield trenches.
 - c. Unless specifically authorized in advance by VDH, the location of the distribution box shall remain unchanged.
 - d. Lateral trench runs must be as long as practical within the limits of the approved site. Trench width and/or the number of trenches may be modified provided at least 90% of the longest permitted trench length of a single trench is maintained.
 - e. The owner is responsible for providing an "as-built" sketch of the Substituted System to be included with the paperwork submitted to the local health department at the time of inspection (may be provided by the contractor). The sketch (may be hand-drawn) must be legible and shall indicate the "as-built" length and location of each trench in relation to the distribution box. The sketch shall indicate any modifications made to comply with manufacturer's specifications (e.g., depth of distribution box when necessary to accommodate varying inlet elevations). The sketch shall include a comment identifying the name of the manufacturer, the type or model number of the Substituted System, and the number of units, linear feet of product,

etc. used in the installation. VDH will not issue an operation permit for any Substituted System until the sketch is received.

(2) New construction permits. An AOSE, a PE licensed in Virginia, or other person qualified and authorized to design onsite sewage systems in Virginia may specify a gravelless system in accordance with this policy and a manufacturer's specifications when designing or certifying the design of a septic-effluent system. VDH will not design Substituted Systems according to this policy. The following shall apply:

- a. The absorption area surrounding and including the Substituted System ("footprint") shall be of sufficient size and configuration to accommodate a gravel-type drainfield that complies with the sizing requirements of the *Regulations*, including reserve area if applicable. The absorption area must comply with all other applicable requirements of the *Regulations* including, but not limited to, vertical and horizontal separation distances, trench location, trench depth, and contour orientation. The entire absorption area shall be shown on the construction drawings.
- b. Except for sizing the drainfield in accordance with manufacturer's specifications and substituting the appropriate proprietary materials or devices, the drainfield shall be designed exactly as provided in the *Regulations*, including, but not limited to the lateral separation of trenches based on trench width.
- c. Lateral trench runs must be as long as practical within the limits of the approved site so as to minimize the linear loading rate.

2. Physical Requirements.

- A. The storage capacity of a Substituted System must be substantially equivalent to that available in a gravel system.
- B. The total trench bottom area of the Substituted System (measured as the area bounded by the outer-most limits of the system's contact with the trench bottom) must be at least fifty percent (50 %) of that required for a conventional gravel system but not less than 300 square feet.

3. Owner's Consent.

Before installation of any Substituted System, the owner must consent to the substitution. Written notice of the decision to install a Substitute System ("Notice of Substitution") shall be signed by the owner and provided to the district or local health department. When an existing permit is being modified, the Notice of Substitution shall be provided not later than at the time of inspection. Otherwise, the Notice of Substitution must be

submitted with the owner's AOSE/PE application package. Submittal of the completed form in Appendix 1 of this GMP shall satisfy this requirement. The Notice of Substitution may be submitted to the district or local health department at the time of submission of the completion statement from the sewage disposal system contractor required by 12 VAC 5-610-330. For the purposes of this requirement, the term "owner" shall mean the record owner of the lot on which the Substituted System is to be installed, at the time of installation. VDH will not issue an operation permit for any Substituted System until the owner endorses and submits to the Health Department the original and satisfactory Notice of Substitution.

4. Installation

- A. All installers of Substituted Systems shall be trained by the manufacturer in the proper installation of its systems and shall be certified by the manufacturer as having passed the manufacturer's training qualifications prior to installing any Substituted System in pursuant to this policy. The manufacturer shall maintain a current list of qualified installers and shall make the list available to VDH through its website or by other appropriate means. The manufacturer shall provide training to district and local health department staff (free of charge) at times and places that are mutually agreeable.
- B. The manufacturer shall ensure that only certified and trained contractors install their proprietary systems according to this procedure. The manufacturer's warranty, see paragraph 5 below, shall apply to any system properly installed by a contractor licensed in Virginia, regardless of whether the installer was certified and trained by the manufacturer. VDH may approve a properly installed system if the only defect is that the contractor who installed it was not certified by the manufacturer. If a manufacturer fails to adequately enforce this provision, such failure may be grounds to terminate the manufacturer's authorization pursuant to this policy.
- C. The manufacturer shall prepare an installation manual specifically detailing procedures for installation of its system at recommended specifications, shall train installers in accordance with the manual, and shall require adherence to the manual as a condition of installer certification. The manual shall be revised and updated as necessary to ensure proper installation and to prevent installation-related operational problems. A copy of the most current manual and any revisions thereto shall be provided to the Department.
- D. In accordance with the *Regulations* and current VDH policies, VDH will perform final construction inspections on Substituted Systems. However, VDH will not be responsible for verifying that the installer, PE, AOSE, or other qualified designer has complied with the manufacturer's specifications for the Substituted System. Such responsibility shall lie with the person who designed the Substituted System or with the contractor who installed the system (in cases where a VDH permit is modified).

5. Warranty.

The manufacturer shall provide to each owner a full written warranty on each Substituted System installed pursuant to this policy. Such warranty shall be for a minimum of five years from the date of installation covering manufacturer's design and installation specifications, labor and material costs to remedy failure to meet performance expectations as specified in 12 VAC 5-610-350 for systems used and installed in accordance with manufacturer's specifications. The warranty shall automatically transfer to each subsequent owner of the property during the warranty period. See Appendix A.

6. Financial Assurance

A. Prior to allowing the installation of any Substituted System the manufacturer shall deliver to VDH evidence of financial assurance in the form of a letter of credit, insurance policy, cash escrow, or other assurance acceptable to VDH in the initial amount of at least \$100,000.00, which shall be available for payment of unsatisfied warranty claims should the Commissioner determine that the manufacturer refuses to pay a legitimate warranty claim or claims or is financially unable to honor the warranty required in Paragraph 5 above.

B. The amount of financial assurance will be increased annually (if necessary) based on the following formula:

$$FA = N \times F \times C$$

Where: FA = the financial assurance amount in dollars;
N = the number of systems installed in Virginia over the previous five years;
F = the percent failure rate (may be modified after two years of data are collected);
C = the average cost of repair (may be modified after five years of data are collected).

The manufacturer shall deliver evidence of the annually revised financial assurance amount on or before December 31st of the year preceding the year for which the financial assurance is required. A failure rate of 3 % (F) and a repair cost of \$5,000 (C) will be assumed until data are available from systems installed in Virginia that indicate a different failure rate or repair cost should be used for a particular Substituted System. The manufacturer shall be responsible for collecting and reporting the data used to calculate (N) each year. Regardless of the formula, the minimum amount of financial assurance required shall be \$100,000.00.

7. Authorization.

- A. Owners will be responsible for ensuring that the manufacturer has obtained written authorization from VDH to install their proprietary non-gravel systems prior to installing or allowing the installation of any Substituted System pursuant to this policy. VDH will maintain a list of authorized manufacturers. Prior to receiving authorization from VDH to install systems at manufacturer's specifications in Virginia, the manufacturer shall provide to VDH the following documentation:
- (1) The manufacturer's product and design specifications for installing its system (i.e., the design and installation manual);
 - (2) Evidence of financial assurance acceptable to VDH in the amount of at least \$100,000.00;
 - (3) The warranty language acceptable to VDH (see Appendix A) that will be provided to owners; and
 - (4) The list of certified installers (Note: this list is to be provided to the extent that the manufacturer has trained and certified installers at time of application for authorization. Authorization of a Substituted System pursuant to this policy is not contingent upon this list, however it shall be the Manufacturer's responsibility to ensure that all installers are properly trained and certified and that the list of certified installers is provided to VDH prior to the installation of any Substituted System(s)).
- B. VDH shall issue the manufacturer's authorization under this policy within thirty (30) calendar days of receipt of the above documentation if it complies with the conditions of this policy. If VDH determines that the information submitted does not comply with the conditions of this policy, it shall notify the manufacturer, within thirty (30) calendar days, of the deficiencies.
- C. VDH's recognition of an alternative method of designing a system pursuant to this policy shall not be construed, reported, or advertised as an approval or endorsement by the Virginia Department of Health.

9. Termination.

VDH may terminate a manufacturer's authorization under this policy for failure to comply with any condition or conditions of this policy. VDH may terminate the manufacturer's authorization under this policy if the failure rate exceeds (F) in Paragraph 6.B above. VDH may revoke any permit issued pursuant to this policy if it determines that a manufacturer, owner or contractor has not complied with any provision of this policy or applicable provisions of the *Regulations*.